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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/540,914

10/25/2005

Richard Coogan

4662-37

1188

23117 7590 03/22/2007

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EXAMINER

SHOSHO, CALLIE E

ART UNIT

PAPER NUMBER

1714

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

03/22/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/540,914	COOGAN ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Callie E. Shosho	1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 December 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

1. Please note that the examiner of record has been changed. The new examiner is Callie Shosho.
2. All outstanding rejections except for those described below are overcome by applicants' amendment filed 12/20/06.

In light of the new grounds of rejection set forth below, the following action is non-final.

**Claim Rejections - 35 USC § 102**

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 1-12 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 01/02455.  
The disclosure is adequately set forth in paragraph 5 of the office action mailed 10/5/06 and is incorporated here by reference.
5. Claims 1-5 and 7-12 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 332326.

EP 332326 discloses aqueous dispersion of self-crosslinking polyurethane, i.e. aqueous coating composition, wherein the polyurethane is obtained by reaction of prepolymer obtained from reaction of polyisocyanate corresponding to presently claimed A(i), polyol possessing molecular weight of 400-6000 such as polyester polyol or polyether polyol corresponding to

presently claimed A(v), crosslinkable polyol corresponding to presently claimed A(iv), ionic polyol corresponding to presently claimed A(ii), and nonionic polyol possessing molecular weight of 250-3000 corresponding to presently claimed A(iii) with active-hydrogen chain extender. It is disclosed that the prepolymer possesses NCO/OH ratio of 1.1-6. The aqueous dispersion also contains reactive diluent, i.e. vinyl monomer. The aqueous dispersion comprises 20-60% polyurethane and thus, 80-40% water. There is also disclosed coating obtained from the aqueous coating composition or polyurethane dispersion and a coated substrate having a coating comprising the aqueous coating composition or aqueous polyurethane dispersion. There is also disclosed a process for preparing the aqueous polyurethane dispersion comprising reacting the polyisocyanate, polyol possessing molecular weight of 400-6000, crosslinkable polyol, ionic polyol, and nonionic polyol to form prepolymer, forming aqueous dispersion of the prepolymer, and chain extending the prepolymer with the chain extender. Although EP 332326 discloses coating comprising the aqueous polyurethane dispersion that is used to coat substrates, there is no explicit disclosure of method coating the substrate as required in present claim 11. However, it is clear that coating a substrate would necessarily inherently involve applying the coating to substrate followed by drying, i.e. removal of water (page 2, lines 3-4 and 39-42, page 2, line 55- page 3, line 3, page 4, lines 48-51, page 4, lines 55- page 5, line 19, page 7, lines 15-21, 24-25, and 30-33, page 8, lines 10-24, page 9, lines 115-18, 28-32, and 39-44, page 10, lines 14-17, page 12, lines 21-26, page 13, lines 23-28 and 35-36).

Attention is drawn to example 4 that discloses polyurethane obtained by reacting prepolymer obtained from 46% polyol possessing molecular weight of 2000, 12% crosslinkable polyol which has calculated molecular weight of 274, 30% diisocyanate, and 5.2% 2,2-

dimethylolpropionic acid which has calculated molecular weight of 134 with chain extender. It is further calculated that the dispersion comprises approximately 23% polyurethane ( $0.67 \times 34.3$ ) and 77% water.

Although there is no disclosure in EP 332326 regarding the gloss of the aqueous coating upon drying, given that EP 332326 discloses coating comprising polyurethane as presently claimed, i.e. obtained from prepolymer and chain extender as presently claimed, in amount as presently claimed, it is clear that the coating of EP 332326 would inherently possess gloss as presently claimed.

In light of the above, it is clear that EP 332326 anticipates the present claims.

**Claim Rejections - 35 USC § 103**

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over EP 332326 in view of Akutsu et al. (U.S. 4,839,443).

The disclosure with respect to EP 332326 in paragraph 5 above is incorporated here by reference.

The difference between EP 332326 and the present claimed invention is the requirement in the claims of polysiloxane polyol.

It is noted that presently claimed component A(vi) is present in amount of 0-50%. When the presence of such component is required, i.e. greater than 0%, it is noted that there is no

disclosure in EP 332326 of using such component, i.e. polysiloxane polyol, in combination with the other components to form the prepolymer.

Akutsu et al. disclose polyurethane obtained from polysiloxane polyol in order to produce polyurethane with superior physical properties such as water repellency, oil repellency, stain resistance, etc. (col.1, lines 8-17 and 19-24, col.3, lines 30-33, col.3, line 50-col.4, line 2, and col.9, lines 4-11 and 17-18).

In light of the motivation for using polysiloxane polyol disclosed by Akutsu et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use polysiloxane polyol in forming the polyurethane of EP 332326 in order to produce coating with superior water repellency, oil repellency, stain resistance, etc., and thereby arrive at the claimed invention.

8. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 01/02455.

The disclosure is adequately set forth in paragraph 6 of the office action mailed 10/5/06 and is incorporated here by reference.

9. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ingrisich et al. (U.S. 6,462,127).

Ingrisich et al. disclose aqueous polyurethane dispersion, i.e. aqueous coating composition, comprising self-crosslinking polyurethane obtained from reacting prepolymer obtained from unsaturated fatty acid, i.e. corresponding to presently claimed A(iv), high

molecular weight polyol possessing molecular weight of 500-4000 corresponding to presently claimed A(v), low molecular weight polyol possessing molecular weight of 50-500 corresponding to presently claimed A(iii), anionic polyol possessing molecular weight of 100-200 corresponding to presently claimed A(ii), and polyisocyanate corresponding to presently claimed A(i) with active hydrogen containing chain extender. It is disclosed that the prepolymer possesses NCO/OH ratio of 1.2-2. The aqueous dispersion also contains reactive diluent, i.e. acrylate monomer. The polyurethane possesses average particle size of 50-500 nm. The aqueous dispersion comprises 20-60% polyurethane and thus, 80-40% water. There is also disclosed coating obtained from the aqueous coating composition or aqueous polyurethane dispersion and a coated substrate having a coating comprising the aqueous coating composition or aqueous polyurethane dispersion. There is also disclosed a process for preparing the aqueous polyurethane dispersion comprising reacting the unsaturated fatty acid, high molecular weight polyol, low molecular weight polyol, anionic polyol, and polyisocyanate to form prepolymer, forming aqueous dispersion of the prepolymer, and chain extending the prepolymer with the chain extender. Although Ingrisich et al. disclose coating comprising the aqueous polyurethane dispersion that is used to coat substrates such as metal, plastic, wood, etc. there is no explicit disclosure of method coating the substrate as required in present claim 11. However, it would have been obvious to one of ordinary skill in the art that coating such substrate would necessarily intrinsically involve applying the coating to substrate followed by drying, i.e. removal of water (col.1, lines 4-9, col.3, line 37-col.5, line 9, col.5, lines 16-26, col.6, lines 29-38, col.7, lines 19-24 and 39-65, col.9, lines 51-65, col.10, lines 15-16 and 20-24, col.11, lines 18-21 and 35-60, col.12, lines 15-17 and 33-36, col.13, lines 39-44).

It is noted that Ingrisich et al. disclose the use of 0.3-12% unsaturated fatty acid, 0.5-12% high molecular weight polyol, 0.5-3% low molecular weight polyol, 0.5-35 anionic polyol, and 3.5-16% polyisocyanate based on the total dispersion. It is calculated, using just the amount of ingredients that comprise the prepolymer, that the prepolymer is obtained from 5.6-26% unsaturated fatty acid, 9.4-26% high molecular weight polyol, 6.5-9.5% low molecular weight polyol, 6.5-9.4% anionic polyol, and 35-66% polyisocyanate.

The difference between Ingrisich et al. and the present claimed invention is the requirement in the claims of the amount of anionic polyol, i.e. polyol containing ionic groups A(ii), and the gloss of the coating upon drying.

It is noted that Ingrisich et al. disclose the use of 6.5% anionic polyol, i.e. polyol containing ionic groups, while the present claims require 6% polyol containing ionic groups.

It is apparent, however, that the instantly claimed amount of polyol containing ionic groups and that taught by Ingrisich et al. are so close to each other that the fact pattern is similar to the one in *In re Woodruff*, 919 F.2d 1575, USPQ2d 1934 (Fed. Cir. 1990) or *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed.Cir. 1985) where despite a “slight” difference in the ranges the court held that such a difference did not “render the claims patentable” or, alternatively, that “a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough so that one skilled in the art would have expected them to have the same properties”.

In light of the case law cited above and given that there is only a “slight” difference between the amount of polyol containing ionic groups disclosed by Ingrisich et al. and the amount disclosed in the present claims, it therefore would have been obvious to one of ordinary skill in



the art that the amount of polyol containing ionic groups disclosed in the present claims is but an obvious variant of the amount disclosed in Ingrisich et al. and, further that, in light of this, and given that Ingrisich et al. disclose coating obtained from polyurethane as presently claimed, i.e. obtained from prepolymer and chain extender as presently claimed, the coating of Ingrisich et al. would also intrinsically possess same gloss upon drying as presently claimed, and thereby one of ordinary skill in the art would have arrived at the claimed invention.

#### **Response to Arguments**

10. Applicants' arguments filed 12/20/06 have been fully considered but they are not persuasive.

Specifically, applicants argue that WO 01/02455 (Irle et al.) is not a relevant reference against the present claims given that the coating of WO 01/02455 possesses gloss at 60<sup>0</sup> outside the scope of the present claims. As evidence to support this position, applicants point to 1.132 declaration filed 12/20/06.

However, it is the examiner's position that the declaration is not persuasive for the following reasons.

Paragraph 5 of the declaration filed 12/20/06 discloses the value of the gloss measurements for each of examples 1-4 of WO 01/02455. However, it is not clear why three different values are given for each example. Clarification is requested. Further, paragraph 7 of the declaration states that the 60<sup>0</sup> gloss in examples 1-4 of WO 01/02455 is over 80, however, it is not disclosed how this relates to the Table in paragraph 5 or which of the values in the Table correspond to gloss at 60<sup>0</sup>. Additionally, paragraph 4 of the declaration states that examples 1-4

of WO 01/02455 were repeated. However, there is no explicit disclosure in WO 01/02455 of examples 1-4 and thus, it is not clear what examples the declaration refers to. Does the declaration refer to the polyurethane dispersions 1-4 in col.6-col.8 or the clear lacquer compositions in col.8, lines 45-46? Clarification is requested.

In light of the above, it is the examiner's position that the declaration is not persuasive in establishing that the gloss of the coating compositions of WO 01/02455 is outside the scope of the present claims, and thus, WO 01/02455 remains a relevant reference against the present claims.

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Martin et al. (U.S. 7,094,8326) disclose aqueous dispersion of polyurethane which is produced by reacting prepolymer with chain extender wherein the prepolymer is identical to that presently claimed with the exception that polyol corresponding to presently claimed A(v) is present in amount the scope of the present claims.

EP 709144, a machine translation which is included in this office action, discloses polyurethane obtained from prepolymer comprising reaction of crosslinkable polyol, polyester diol, ionic polyol, diisocyanate, and chain extender, however, there is no disclosure of the molecular weight of the crosslinkable polyol, no disclosure of the NCO/OH ratio of the prepolymer, and no disclosure of the gloss of the coating upon drying as presently claimed.

Art Unit: 1714

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Callie E. Shosho  
Primary Examiner  
Art Unit 1714

CS  
3/18/07